Nurturing Prosperity: Revitalizing Pakistani Agriculture Through Empowering Farmers

Shafiq ur Rehman, Maqsood Ahmad, Malik Muhammad Akram and Mujahid Ali

On Farm Water Management Punjab, Pakistan

Abstract: Agricultural training plays a crucial role in enhancing the knowledge, skills and productivity of farmers in Pakistan. The country's economy heavily relies on agriculture, which employs a significant portion of the population and contributes to the nation's gross domestic product (GDP). Agriculture accounts for about 22% share in GDP. Being the backbone of the country, to ensure sustainable agricultural practices, increase crop yields and improve farmers' livelihoods, various agricultural training programs and initiatives have been introduced across the country by Agriculture Departments i.e., Water Management Training Institute (WMTI) Lahore is working hard for this purpose. These agricultural training programs have emerged as a key driver in empowering and capacity-building the nation. Pakistani farmers are still relying on traditional agricultural practices gaining very low per acre yield. By enhancing technical knowledge, promoting sustainable practices, improving livelihoods and facilitating advanced technology adoption, these programs equip farmers with the tools necessary for success. To further harness the potential of agricultural training, continued investment, collaboration and expansion of these initiatives are crucial. By empowering farmers, Pakistan can unlock the full potential of its agricultural sector, ensure food security and drive sustainable economic growth.

Key words: Growers - Guidelines - Practical Demonstration - Capacity Building

INTRODUCTION

In Pakistan, the majority of the population depends directly or indirectly on the agriculture sector, which has a significant contribution to the country's economy and employment. However, agricultural production experiences fluctuations every year. Currently, one of the major issues in the agriculture sector is the shrinking availability of resources, such as land ownership, while the population continues to increase steadily. There are several reasons behind the low productivity in the agriculture sector. Firstly, in Pakistan, approximately 85 to 90% of small-scale farmers face challenges in adopting the latest agricultural technologies due to financial and social constraints. Many of these farmers are not well aware of the emerging technologies and even if they have some awareness, they are reluctant to adopt recommended production technologies. Instead, they often rely on traditional knowledge passed down through generations for crop production [1].

Pakistan, with its predominantly agrarian economy, heavily relies on the performance of its farming community. However, challenges such as limited knowledge, outdated techniques and inadequate resources hinder the productivity and growth of farmers. To address these issues, agricultural training programs have been implemented to equip farmers with essential skills, modern practices and access to resources. This report reviews the impact of such training initiatives, discusses their benefits and provides recommendations for further improvements. Pakistan's agricultural sector plays a pivotal role in its economy, contributing significantly to the GDP and providing employment to a large portion of the population. However, farmers face numerous challenges, including limited access to technology, insufficient knowledge of modern farming techniques and inadequate resources. Agricultural training programs have been introduced to bridge this knowledge gap and empower farmers to improve their productivity and economic well-being. Additionally, the adoption of improved agricultural technologies has been shown to positively impact agricultural productivity and income among smallholder farmers [2].

A study was conducted to examine the adoption of precision farming through personal interviews conducted at various agricultural exhibitions in Germany. The study
revealed that a percentage ranging from 6.65% to 11% of the farmers interviewed were utilizing PF techniques. However, the majority of these farmers were primarily using data collection methods such as GPS-based area measurement and soil sampling, rather than more advanced techniques like site-specific sowing and fertilizing with variable rate applications. Approximately half of the farmers interviewed were aware of PF, while around 7-10% expressed their intention to implement PF in the future. The findings indicated that a significant number of farmers were unfamiliar with the concept of PF. To gain further insights into this situation, additional interviews were conducted with farmers who were already employing PF techniques. Another study conducted in 2005 on PF education in Germany revealed that the subject was inadequately covered in vocational and technical schools, with plans to improve its coverage in the future. On the other hand, PF was well-established in higher education institutions such as universities and technical colleges. To increase awareness of PF among farmers, customized information and educational materials were developed and tested during training events, tailored to the educational levels of the participants. These materials focused on topics such as parallel tracking systems, site-specific nitrogen fertilization, yield and mapping in grain production. Lastly, preliminary survey results are presented, demonstrating how knowledge about PF can facilitate its successful adoption and integration into daily agricultural practices [3].

**Government Initiatives:** The Government of Pakistan, through its Ministry of National Food Security and Research, has implemented several agricultural training programs aimed at educating and training farmers. These initiatives focus on disseminating modern agricultural techniques, best practices and the use of improved farming technologies. Further, Agriculture Departments i.e., Water Management Training Institute (WMTI) Lahore is playing a dynamic role in this regard. Pakistan Horticulture Development & Export Company is training farmers to cope with postharvest losses of horticulture crops. Pakistan has several agricultural training institutes, such as the University of Agriculture Faisalabad, the University of Agriculture Peshawar and Sindh Agriculture University Tandojam. These institutes offer degree programs in agriculture, horticulture and other related disciplines. They also conduct short-term training courses and workshops for farmers, focusing on specialized topics like organic farming, livestock management and agricultural machinery.

**Farmer Field Schools (FFS):** Farmer Field Schools are established to provide practical training to farmers in their own fields. These schools are set up at the village level and offer hands-on training on crop cultivation, pest management, soil fertility, irrigation techniques and post-harvest handling. Trained agricultural extension workers conduct these sessions to educate farmers about sustainable agricultural practices.

**Agricultural Extension Services:** The government has established a network of agricultural extension offices throughout the country. These extension services aim to provide technical advice, training and guidance to farmers on a regular basis. Field visits, training workshops and demonstrations are organized to address farmers’ queries, educate them about new farming practices and promote the adoption of improved technologies.

**Non-Governmental Organizations (NGOs):** Several NGOs are actively involved in agricultural training and capacity-building programs for farmers in Pakistan. These organizations collaborate with local communities, government agencies and international partners to promote sustainable farming practices, improve crop yields and enhance farmers' knowledge.

- **Rural Support Programs:** Organizations like the Rural Support Programmes Network (RSPN) work closely with farmers in rural areas. They provide technical assistance, training and resources to help farmers adopt improved agricultural practices. These programs focus on areas like water conservation, crop diversification, integrated pest management and value addition.

- **International Water Management Institute – IWMI** similarly conducts training in this regard

**International Partnerships:** International organizations such as the Food and Agriculture Organization (FAO) and the International Fund for Agricultural Development (IFAD) collaborate with the Pakistani government and local NGOs to implement agricultural training projects. These partnerships involve the transfer of knowledge, expertise and resources to train farmers on sustainable farming techniques, climate-smart agriculture and market linkages.

**Private Sector Initiatives:** The private sector also plays a vital role in agricultural training by offering specialized training programs, promoting the use of modern
technology and providing market-oriented guidance to farmers.

Agribusiness Companies: Many agribusiness companies in Pakistan organize training workshops and field days to educate farmers about the latest farming techniques, crop varieties and agrochemical usage. These initiatives focus on improving productivity, reducing post-harvest losses and optimizing the use of resources.

Farmer Cooperatives: Farmer cooperatives and associations often arrange training programs for their members. These initiatives aim to enhance farmers' skills in various agricultural domains, including crop production, livestock management and marketing. Farmers also benefit from collective bargaining power, access to inputs and market linkages through these cooperatives.

Impact or Benefits of Agricultural Training: Agricultural training programs aim to enhance farmers' skills, knowledge and awareness about modern agricultural practices. These programs provide farmers with insights into improved crop cultivation, efficient water management, pest control methods and post-harvest handling techniques. The training also focuses on sustainable farming practices, such as organic farming, conservation agriculture and integrated pest management.

Several studies have examined the impact of agricultural training programs on Pakistani farmers. A study conducted by Khan and Ahmad [4] assessed the effects of agricultural training on the adoption of modern farming practices. The findings revealed that farmers who received training were more likely to adopt improved techniques, leading to higher crop yields and increased income. Furthermore, a research study conducted by Mustafa et al. [5] evaluated the impact of agricultural training on the adoption of climate-smart agricultural practices. The study found that trained farmers were more likely to implement climate-resilient strategies, such as crop diversification and water conservation, which improved their resilience to climate change-induced risks.

Farmer training programs that focus on advanced agricultural techniques are crucial for farmers' knowledge and capacity development. Furthermore, the farmers generally considered the number of training days, the time allocated for practical and theoretical training, the practical knowledge shared and the presentations by the lecturers to be sufficient. The study compared several measures before and after the training, including the transition from partial to full adoption of cultivation of high-yield varieties, the shift from non-adoption to full adoption of recommended seeding rate and pesticide usage and the adoption of new irrigation methods. However, there was no observed effect of training on the adoption of new packaging methods. Based on the findings, the study concludes that training has a positive impact on farmers' technological knowledge. These results provide evidence supporting the continuation of agricultural training programs under the government's auspices in the future [6].

Agricultural training programs provide numerous benefits to farmers. Firstly, they equip farmers with the technical knowledge and skills required for modern farming practices, leading to increased crop productivity. Secondly, farmers gain awareness about the efficient use of resources, including water, fertilizers and pesticides, resulting in cost savings and environmental sustainability. Additionally, training programs enhance farmers' understanding of market dynamics, enabling them to make informed decisions regarding crop selection, pricing and marketing strategies.

In a previous study, the significance of training farmers' communication and cooperation strategies in the adoption of precision farming (PF) and their correlation with farm attributes is examined. Qualitative interviews were conducted with forty-nine stakeholders from the agricultural sector. The findings indicate that farms vary in their communication strategies, which are influenced by the size of the farm. It was also noted that joint investments in PF were only reported in certain regions [7].

A majority of the respondents agreed that the training programs were beneficial and had helped them become better farmers. The impact of the training can be summarized into six major benefits, prioritized as follows: (i) improved work quality, (ii) increased farm productivity, (iii) cost savings, (iv) time savings, (v) increased income and (vi) expanded networking opportunities. The training provided to the farmers not only enhanced their capabilities but also boosted their morale and motivation, thereby contributing to their improved performance levels [8]. Trained women are an asset to the nation [9, 10]. In short training the farmer community is a way to rural development [11].

Challenges and Recommendations: While agricultural training programs have shown positive outcomes, certain challenges must be addressed to maximize their effectiveness. Some challenges include limited accessibility to training centers, language barriers and the
need for ongoing support and monitoring. To overcome these challenges, it is recommended that training programs be expanded to reach remote rural areas through mobile training units or digital platforms. Moreover, training materials should be available in local languages to ensure effective communication and knowledge transfer. Continuous monitoring and evaluation of training programs are crucial to identify gaps and improve the quality of training provided.

CONCLUSION

Agricultural training programs have emerged as a key solution to empower Pakistani farmers, enhance their skills and improve productivity. The reviewed studies demonstrate the positive impact of agricultural training on the adoption of modern farming practices, climate resilience and economic well-being. To ensure the long-term success of these programs, it is essential to address challenges and continuously improve the accessibility, quality and reach of training initiatives. By investing in agricultural training, Pakistan can pave the way for a more prosperous and sustainable agricultural sector.

REFERENCES